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Beltrania nodulosa sp. nov. from Ecuador

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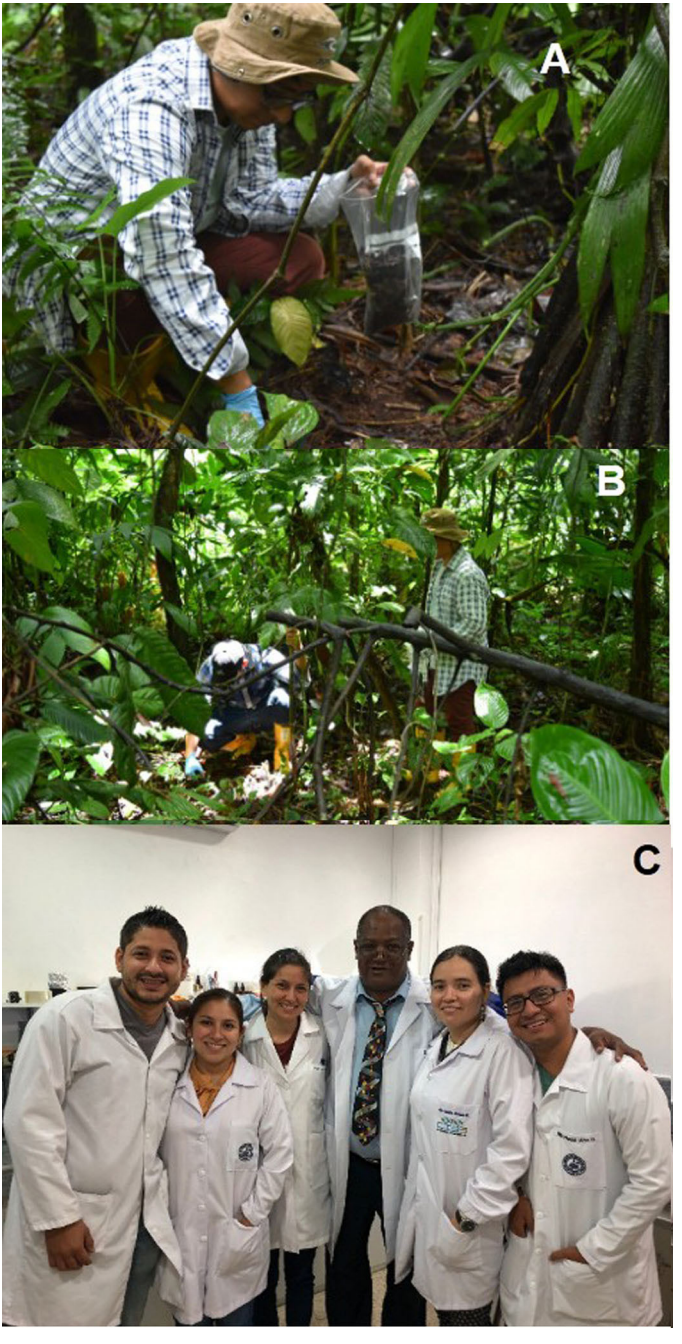
Abstract— *Beltrania nodulosa,* a new species found on a decaying leaf of an unidentified plant in Ecuador, is described and illustrated. The fungus is characterized by cylindrical-nodulose conidiophores and primarily monoblastic integrated mostly intercalary nodose conidiogenous cells. Its solitary and mostly pleurogenous broadly biconic to rhombic conidia are obtuse or rounded at the apex and inconspicuously mammillate at the base below the inconspicuous transverse supra-equatorial hyaline band.

Key words—asexual fungi, hyphomycetes, taxonomy, tropics

Introduction

Beltrania Penz. (typified by *B. rhombica* Penz.) is characterized by conidiophores that are cylindrical, septate, straight or flexuous, apically acute with a radially lobed basal cell, macronematous, mononematous, and pale olive-yellow, pale brown, or brown and which usually arise close to dark brown or black setae. The conidiogenous cells are polyblastic, terminal, integrated, sympodially extended, and denticulate at the ends, usually producing variously shaped (oval, broadly fusiform, obovate) inflated or collapsed, (sub)hyaline separating cells. The solitary pale yellow-olivaceous


A
B
C

to reddish-brown conidia are rhombic or biconic and unicellular (but with an indistinct pale brown, (supra)equatorial transverse band), usually with some sort of basal denticle and an apex that is either obtuse or rostrate (Pirozynski 1963, Seifert & al. 2011). During a survey of hyphomycetes associated with plant litter from the tropical rainforest at the Río Palenque Scientific Center near the Cantón Buena Fé, Los Rios province (Fig. 1), we collected a *Beltrania* specimen that differed remarkably from all previously named species (Zheng & al. 2020) and which we describe here as new.

Materials & methods

Samples of decaying plant materials were collected and placed in plastic bags for transporting to the laboratory, where they were washed, treated according to Castañeda-Ruiz & al. (2016), and placed in moist chambers. Mounts were prepared either in lactic acid (90%) or in polyvinyl alcohol-glycerol (8 g PVA in 100 ml H_2O + 5 ml glycerol) and lactofuchsin (0.1 g acid fuchsin in 100 ml 85% lactic acid) following Carmichael (1955). Features were measured at 1000× magnification and photographed using a Zeiss Axioskop 40 microscope with bright field optics. The type specimen is deposited in the herbarium of the Culture Collection of Microorganisms, CIBE, Guayaquil, Ecuador. (CCMCIBE).

Taxonomy

Beltrania nodulosa R.F. Castañeda, Quevedo & D. Sosa, **sp. nov.** Figs 2– 4

IF 557074

Differs from *Beltrania onirica* by its nodulose and primarily monoblastic intercalary conidiogenous cells and its broadly biconic to rhombic pale yellowish-brown conidia with obtuse or rounded apices.

Type: Ecuador, Los Ríos province, Cantón Buena Fé, Parroquia Patricia Pilar, 0°35 45 S 79°21 49 W, on decaying leaf of an unidentified plant. 18.III.2019, coll. A. Quevedo, M. Vera & F. Espinoza (**Holotype**, CCMCIBE-H549).

Etymology: *nodulosa* (Latin) referring to the inflated, nodulose conidiogenous cells.

Colonies on the natural substrate effuse, hairy pustule-like, hypophyllous, yellowish-brown. Mycelium mostly immersed; hyphae septate, slightly branched, smooth, 1–2 µm diam., pale brown. Setae cylindrical, erect, straight, 5–8(–11)-septate, subacute or rounded at the apex, radially lobed at the base, smooth-walled, dark brown to black, ≤450 µm long, 25–30 µm broad at the base. Conidiophores macronematous, mononematous, erect,

Fig. 1. A–B. Mycological survey in the protected rainforest near the Cantón Palenque, Los Rios province, Ecuador. C. Team in the laboratory (from left): Fernando Espinoza, Miriam Villavicencio, Adela Quevedo, Rafael F. Castañeda-Ruiz, Lizette Serrano, and Marcos Vera.

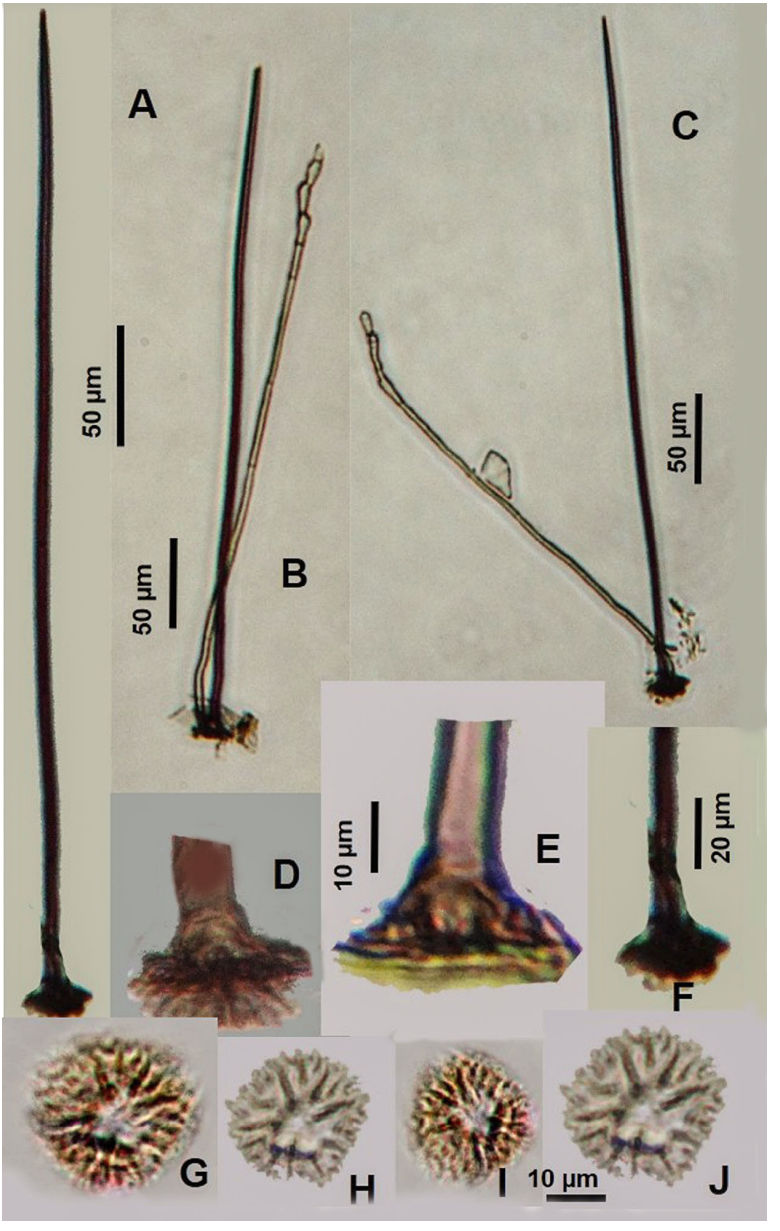


Fig. 2. *Beltrania nodulosa,* (ex holotype, CCMCIBE-H549). A. Seta; B, C. Setae, conidiophores, conidiogenous cells, and a conidium; D–F. Basal sections of the conidiophore and setae; G–J. Radial lobed basal cells of the setae and conidiophores.

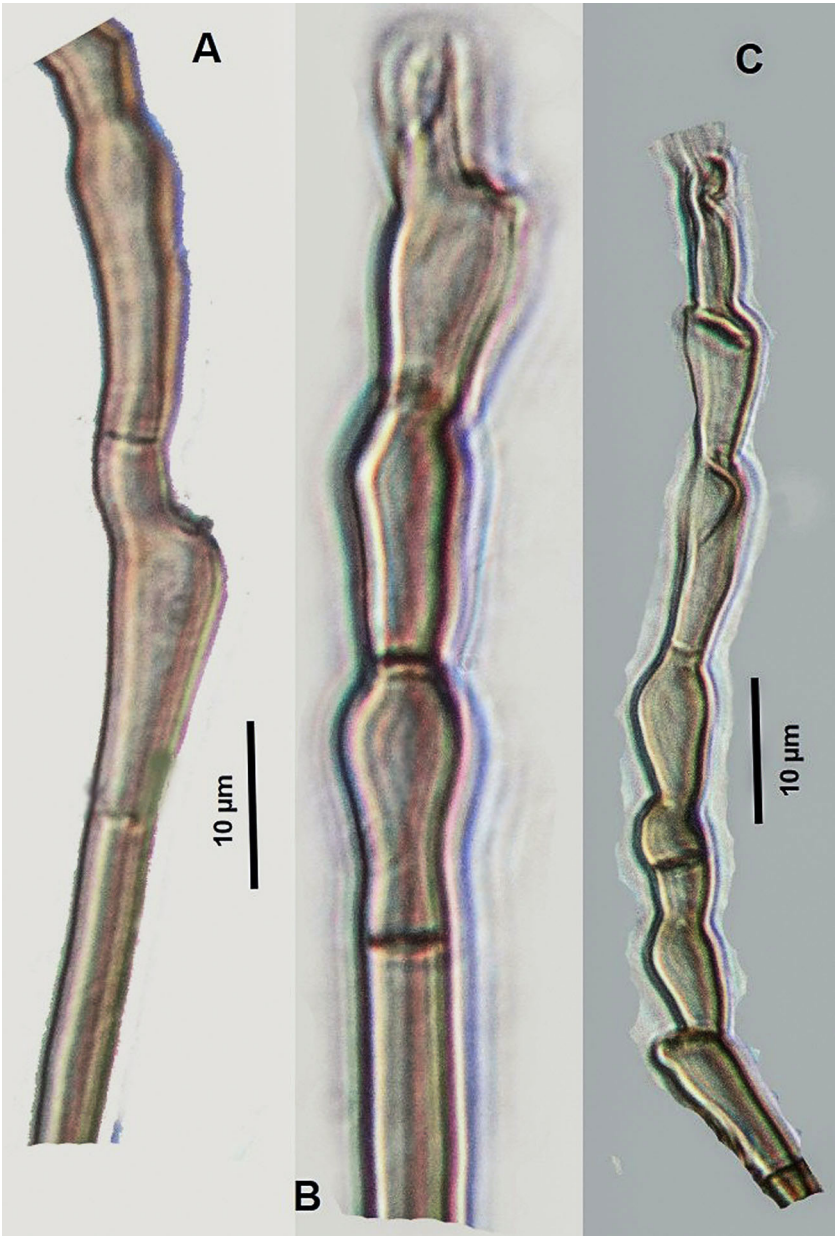


Fig. 3. *Beltrania nodulosa*, (ex holotype, CCMCIBE-H549). A–C. Conidiogenous cells.

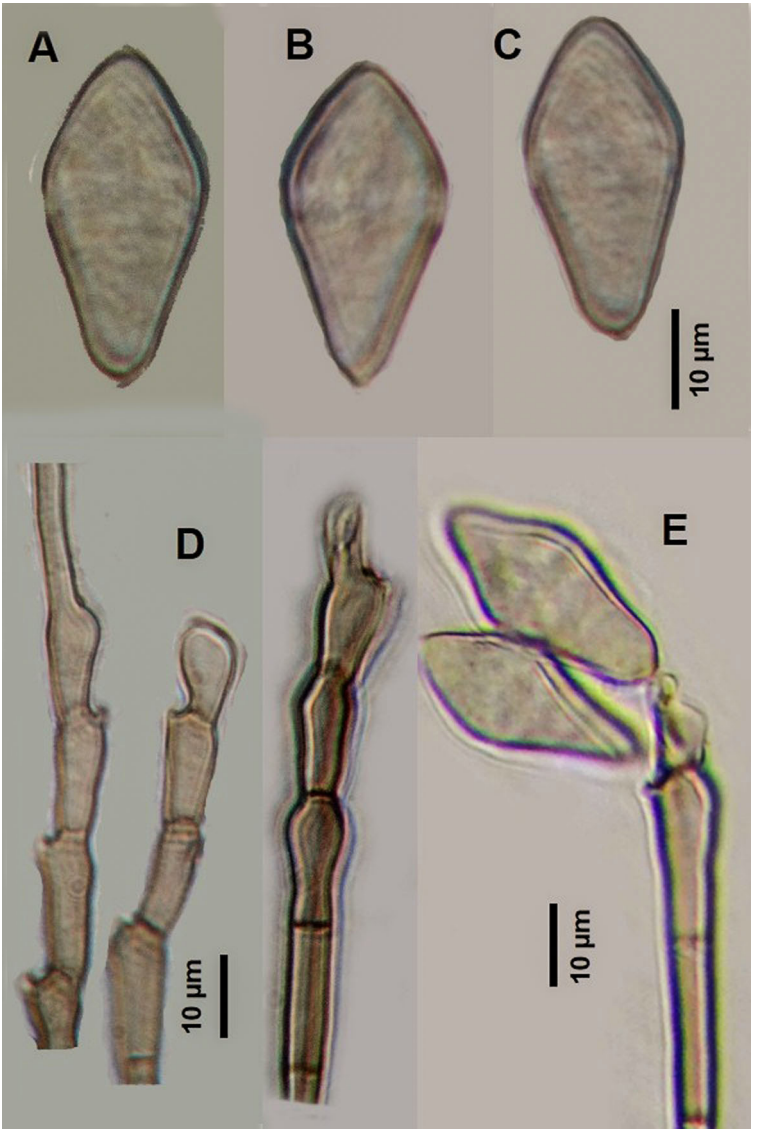


Fig. 4. *Beltrania nodulosa* (ex holotype, CCMCIBE-H549). A–C. Conidia; D. Conidiogenous cells. E. Conidiogenous cells and conidia.

flexuous, cylindrical below, unbranched, irregularly nodulose toward the apex, radially lobed at the base, 6–12-septate, smooth-walled, pale yellowish-brown, 215–350 × 6–13 µm, separate or 1–3 arising from basal cells of setae. Conidiogenous cells primarily monoblastic (sometimes polyblastic), integrated, intercalary and terminal, nodulose, inflated, clavate or subclavate, 12–21 × 6–13 µm with a conspicuous lateral 0.5–1 µm long denticle. Conidial secession schizolytic. Conidia solitary, acropleurogenous (mostly pleurogenous), inequilaterally broadly biconic to broadly rhombic, obtuse to rounded at the apex, inconspicuously mammillate at the base and with a faint transverse supra-equatorial hyaline band, smooth-walled, pale yellowish-brown to pale smoky-brown, 22–30 × 11–20 µm.

Notes: Among accepted *Beltrania* species only *B. eremochloae* Meng Zhang & T.Y. Zhang and *B. onirica* Lunghini, which lack separating cells and a distinct, differentiated apical appendage, are similar to *B. nodulosa* (Onofri & al. 1981, Zhang & Zhang 2003, Zheng & al. 2020). *Beltrania eremochloae* can be distinguished by its consistently polyblastic and terminal conidiogenous cells and its smaller (18–22 × 7–10 µm) biconic-campanulate apically appendiculate olive-buff conidia. *Beltrania onirica* differs in its consistently polyblastic conidiogenous cells and its smaller (19–21 × 11.5–12.5 µm) conic-campanulate apically appendiculate deep olive-buff conidia.

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